Highlights

The Virginia Regional Environmental Management System (V-REMS)

E-85 Fueling Stations Project

E-85 Fueling Stations Project Goal:

To advance U.S. energy independence and reduce the environmental impact of petroleum by increasing the use of E-85 fuel in Virginia by federal, state, and public vehicles.

E-85 pumps can be as convenient to use as pumps at existing gas stations.

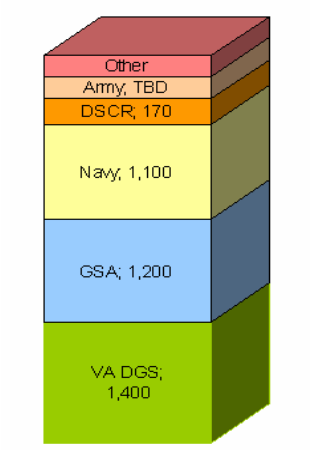
Background:

The combined factors of rising gasoline prices, political motivations for reducing U.S. dependence on foreign oil, and serious environmental impacts of burning fossil fuels are driving the demand for alternatives to gasoline. E-85 gasoline is becoming an increasingly popular alternative fuel choice because it is compatible with many vehicles already on the road.

Quick Facts: E-85 Fuel

- **Produced from 85% ethanol (made from plant matter), 15% gasoline.**
- **Improves U.S. energy independence.**
- **Reduces CO_2 emissions as compared to conventional gasoline.**
- **Often sells for below gasoline prices in the U.S.**
- **Power, acceleration, payload, and cruise speed comparable to gasoline.**
- **On average, 20% less miles-per-gallon than gasoline but has a 17% higher octane rating.**
- **Can only be utilized in E-85 compatible vehicles (e.g., flex-fuel vehicles).**
- **Contains 80% fewer gum-forming compounds than conventional gasoline.**

V-REMS E-85 Buying Power



# of V-REMS E-85 Compatible Vehicles

The Challenge: Lack of E-85 Stations in Virginia

Supply-demand uncertainties and the capital cost of installing E-85 stations have inhibited private suppliers from entering the market. Currently there are only four E-85 fueling stations in Virginia. Only one station is accessible to the public.

A Solution: Leveraging the V-REMS Buying Power and Environmental Commitment

In February 2006, the Virginia Office of Energy and the Virginia Department of General Services presented the V-REMS partnership with a vision for bringing E-85 stations to Virginia. V-REMS partners realized that their collective buying power could help alleviate demand uncertainties and demonstrate regional leadership on advancing the use of E-85. V-REMS partners now assist Virginia and the EPA to increase the number of E-85 fueling stations along the Virginia crescent, a stretch of roadway running along I-95 from Alexandria through to Virginia Beach along I-64 — the area along which V-REMS vehicles have the greatest accessibility to the E-85 fueling stations.

V- REMS
Virginia Regional
Environmental Management System

The Virginia Regional Environmental Management System (V-REMS) partnership joins over 35 public (federal, state, county, and local) and private organizations in the greater Richmond area to address complex community and environmental issues through an innovative partnership approach. The partnership strengthens community relationships and reduces air, water, and waste emissions, promoting environmental sustainability in the areas where its partners operate. The E-85 project is one of the many environmental initiatives that V- REMS pursues. More details on the V-REMS E-85 Project and additional fact sheets profiling V- REMS efforts related to Diesel Bus Retrofits, Stormwater Management, and Energy Efficiency can be found at http://www.peercenter.net/RegionalCollaborations.cfm.

Accomplishments* and Projections:

"Without the existing network of the V-REMS partnership, the E-85 effort in Virginia would have been a much more difficult initiative to institute. The V-REMS E-85 Workgroup's contributions have and will accelerate the deployment of public and private E-85 stations in Virginia much faster than would have been possible with typical market conditions."

Nick DiNardo,
EPA Region III

- By demonstrating V-REMS partners demand for E-85, helped the Virginia Department of General Services to secure $450,000 for up to seven E-85 fueling stations on Commonwealth property.
- V-REMS partners' assistance to the Virginia Clean Cities Coalition led to the award of a Department of Energy grant to fund up to 12 E-85 fueling stations for a total effort of $767,000.
- Working with EPA to leverage a Supplemental Environmental Project (SEP) agreement to finance installation of additional E-85 fueling stations.
- Resulted in the **Defense Supply Center Richmond (DSCR)** Command approving the installation of an E-85 tank for use by DSCR vehicles (50% are E-85 compatible) and employee vehicles.
- Enhanced the **Navy Exchange Service Command (NEXCOM)** efforts to negotiate the installation of three E-85 fueling stations in the Norfolk and Virginia Beach areas by demonstrating a significant demand for E-85 from V-REMS partners.

* In some cases, the accomplishments identified are the results of individual V-REMS partners' voluntary efforts. In others, environmental projects were already in effect when organizations joined V-REMS and experiences were shared. In most instances, partners identified common problems or needs or solutions, shared their experiences, and developed joint projects resulting in environmental improvements.

Above-ground E-85 fuel tanks come in a range of sizes and can be cheaper alternatives to below ground storage tanks.

"Through its collaboration with the V-REMS partnership, the Virginia Department of Mines, Minerals and Energy has been able to support its goal of increasing the use of E-85 in Virginia. V-REMS provides a readily available network of partners for the state to work with to demonstrate the growing demand for E-85."

John Warren,
Virginia Department of Mines, Minerals and Energy, Office of Energy, Director

E-85 Projected Metrics of Success

The following projections are based on the number of E-85 stations proposed for installation. The calculations for estimating the metrics of success are based on a series of assumptions such as the fuel efficiency of burning E-85, the carbon emissions savings of E-85, the cost differential between E-85 and gasoline, etc. The process for calculating and evaluating the metrics of success will undoubtedly evolve—suggestions are welcome.

- **It is estimated that between 3,700-15,000 vehicles will have access to E-85 fueling stations annually.**
- **V-REMS partners' installed E-85 fueling stations are projected to sell between 1.56-5.16 million gallons annually.**
- **33,400-110,220 barrels of crude oil will be conserved annually, helping to reduce our dependence on foreign oil.**
- **Reduction of 1,100,000-3,630,000 lbs. of CO_2 emissions annually.**
- **Smog and ozone-forming emissions will be reduced.**
- **Up to 20 E-85 fueling stations could be installed along the I-95 / I-64 Virginia crescent (one station every 7.5–13 miles) during 2006-7.**
- **Over $1.2 million planned financing (cash and in-kind) through V-REMS efforts to install E-85 fueling stations during 2006–7.**

V-REMS Partnership Sponsors:
Defense Supply Center Richmond, Defense Logistics Agency, DoD
White House Council on Environmental Quality

For More Information:
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